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THOMAS JEFFERSON RESEARCH CENTER

1143 NORTH LAKE AVENUE, PASADENA  
CALIFORNIA 91104 PHONE (213) 798-0791

4 September 1970

Dear Professor Lederberg:

I am writing you at the suggestion of George Beadle. In his article, "Genetics and Cultural Change", Columbia University Forum, Fall, 1965, Vol. 8, No. 3, Dr. Beadle made the following statements:

"Man is the product of two kinds of independent evolution that for convenience and simplicity we call biological and cultural. The latter is of far greater significance in man than in any of his fellow creatures on earth."

"Civilizations rose and fell one after another, rising to great heights at times and dropping back to the depths--much faster than can be accounted for by genetic change, I am convinced."

"Why did the cultures of Egypt, Mesopotamia, Greece, Rome, Maya, Peru, Upper Mexico, and other areas of the world rise and fall precipitously? I cannot believe genetic change could have played a major part. The change was much too rapid."

"Unlike biological inheritance the 'put-in' part of cultural inheritance begins anew with each generation. In the absence of such cultural information put into the brain, none of us would speak, or write, or sing in any intelligent way--or build even the simplest tool. We would revert at once to a cultural stage of hundreds or thousands of years ago. But in another single generation, given the proper cultural context, there could be a complete cultural restoration. What I am trying to

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say is that there is no apparent and inherent limit to the speed with which culture can be lost, acquired, improved, or otherwise modified--given 'normal' individuals of our species."

"The trick: to break or supplement early in life in acceptable ways the normal, parent-to-child chain of cultural transmission. Our schools are now largely unequipped to do this."

In view of the fact that many sociologists believe that human nature is constantly changing through genetic evolution and apparently this change is quite rapid and probably accelerating, Dr. Beadle's contention that the rise and fall of societies is primarily cultural rather than genetic has considerable significance. We would appreciate it very much if you could tell us whether your own professional observations support Dr. Beadle and if not, in what respect do you differ from the statements here quoted. Your professional opinion will be greatly appreciated.

Sincerely yours,



Frank Goble

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Professor Joshua Lederberg  
Stanford University  
School of Medicine  
Stanford - Palo Alto, California 94305